HONDA

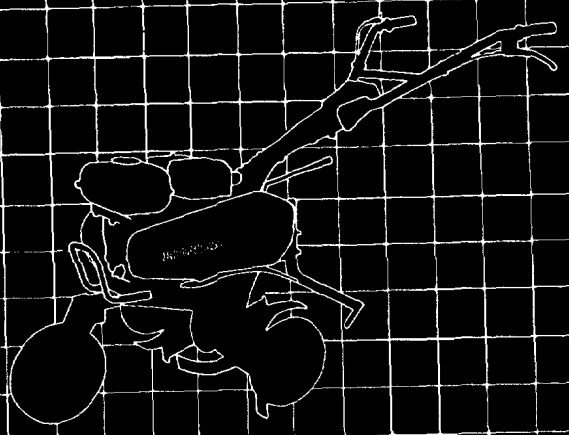
Power

Equipment

Owner's Manual

TILLER

F401 / F501



© HONDA MOTOR CO., LTD. 1989

Thank you for purchasing a Honda tiller.

This manual covers operation and maintenance of F401 and F501 tillers. All information in this publication is based on the latest product information available at the time of approval for printing.

Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation.

No part of this publication may be reproduced without written permission.

This manual is considered a permanent part of the tiller and it must stay with the tiller if resold.

READ THIS OWNER'S MANUAL CAREFULLY. Pay special attention to these symbols and any instructions that follow:

⚠DANGER —**Indicates serious injury or death WILL result if instructions are not followed.**

⚠WARNING —**Indicates a strong possibility that serious injury or death could result if instructions are not followed.**

⚠CAUTION —**Indicates a possibility that minor injury can result if instructions are not followed.**

IMPORTANT NOTICE —**Indicates that equipment or property damage can result if instructions are not followed.**

NOTE: Gives helpful information.

Honda tillers are designed to give safe and dependable service if operated according to instructions. Operating this tiller requires special effort on your part to ensure your safety and the safety of others.

⚠WARNING Using this product for a purpose not intended may cause injury or property damage. Read and understand this Owner's Manual before operating the tiller.

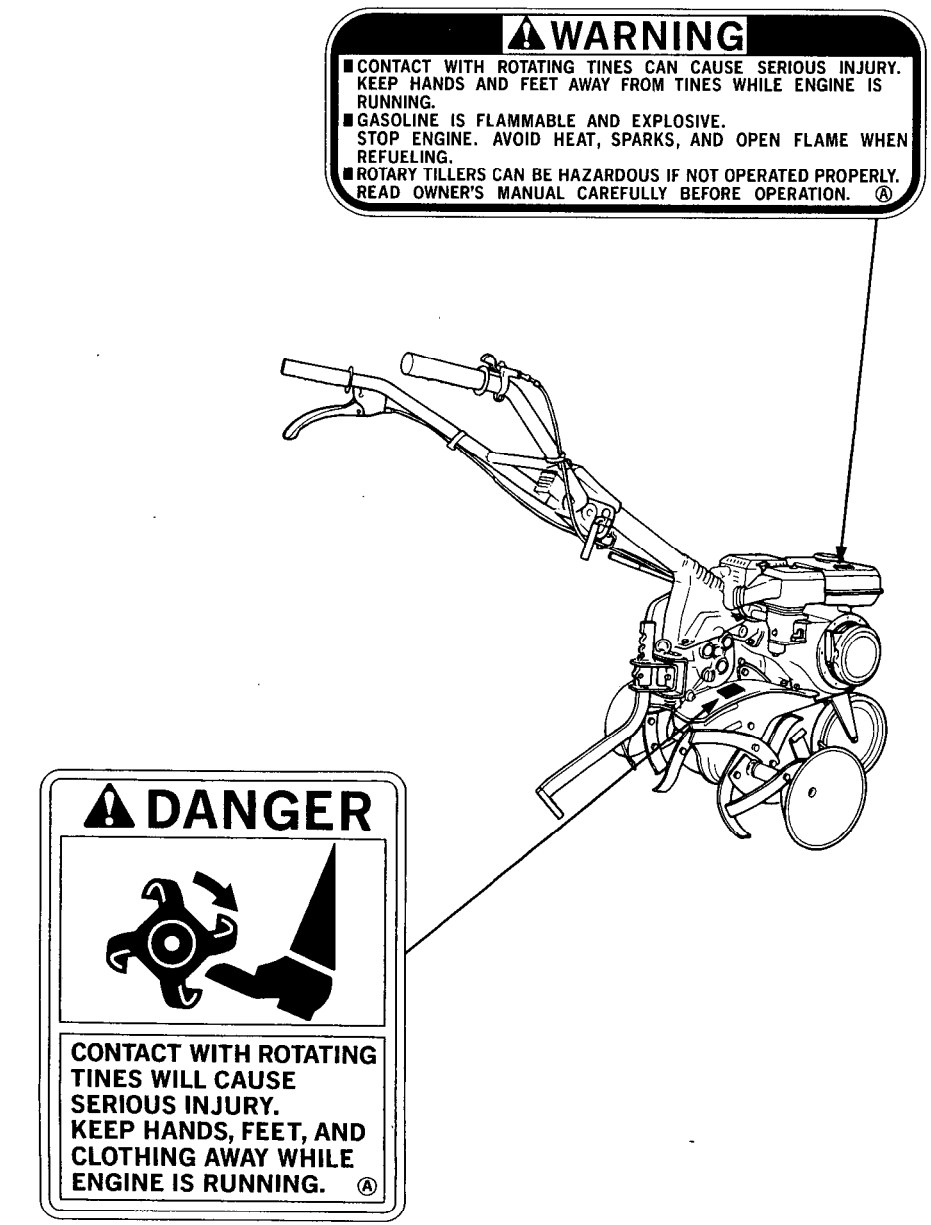
If a problem should arise, or if you have any questions about your tiller, consult an authorized Honda tiller dealer.

HONDA MOTOR CO., LTD. 1989, ALL RIGHTS RESERVED

CONTENTS

1. SAFETY INFORMATION 3
2. COMPONENT IDENTIFICATION 7
3. PRE-OPERATION CHECK 8
4. STARTING THE ENGINE 13
5. TILLER OPERATION 15
6. STOPPING THE ENGINE 18
7. MAINTENANCE 20
8. TRANSPORTING/STORAGE 27
9. TROUBLESHOOTING 28
10. SPECIFICATIONS 29
11. WARRANTY SERVICE 30

Read all safety instructions before operating.


WARNING
■ CONTACT WITH ROTATING TINES CAN CAUSE SERIOUS INJURY. KEEP HANDS AND FEET AWAY FROM TINES WHILE ENGINE IS RUNNING.
■ GASOLINE IS FLAMMABLE AND EXPLOSIVE. STOP ENGINE. AVOID HEAT, SPARKS, AND OPEN FLAME WHEN REFUELING.
■ ROTARY TILLERS CAN BE HAZARDOUS IF NOT OPERATED PROPERLY. READ OWNER'S MANUAL CAREFULLY BEFORE OPERATION. Ⓐ
DANGER
CONTACT WITH ROTATING TINES WILL CAUSE SERIOUS INJURY. KEEP HANDS, FEET, AND CLOTHING AWAY WHILE ENGINE IS RUNNING. Ⓐ

⚠ WARNING

To ensure safe operation—

For your safety and the safety of others, pay special attention to these precautions:

Operator Responsibility

- Keep the tiller in good operating condition. Operating a tiller in poor or questionable condition could result in serious injury.
- Be sure all safety devices are in working order and warning labels are in place. These items are installed for your safety.
- Be sure the safety covers (V-belt cover, recoil starter cover) are in place.
- Know how to stop the engine and tines quickly in case of emergency. Understand the use of all controls.
- Be very cautious when operating the tiller in REVERSE (A2 type), especially if attachments are being used.
- Keep a firm hold on the handlebars. They may tend to lift during clutch engagement.
- Allowing anyone to operate this tiller without proper instruction may result in injury.
- Wear sturdy, full-coverage footwear. Operating this tiller barefoot or with open toe shoes or sandals increases your risk of injury.
- Dress sensibly. Loose clothing may get caught in moving parts, increasing your risk of injury.
- Be alert. Operating this tiller when you are tired, ill or under the influence of alcohol or drugs may result in serious injury.
- Keep all persons and pets away from the tilling area.
- Be sure drag bar is in place and properly adjusted.

Child Safety

- Keep children indoors and supervised at all times when any outdoor power equipment is being used nearby. Young children move quickly and are attracted especially to the tiller and the tilling activity.
- Never assume children will remain where you last saw them. Be alert and turn the tiller off if children enter the area.
- Children should never be allowed to operate the tiller, even under adult supervision.

Rotating Tines Hazard

The rotating tines are sharp and they turn at high speed. Accidental contact can cause serious injury.

- Keep your hands and feet away from the tines while engine is running.
- Stop the engine and disengage the tines clutch before inspection or maintenance of tines.
- Disconnect the spark plug cap to prevent any possibility of accidental starting. Wear heavy gloves to protect your hands from the tines when cleaning the tines or when inspecting or replacing the tines.

Thrown Object Hazard

Objects hit by the rotating tines can be thrown from the tiller with great force, and may cause serious injury.

- Before tilling, clear the tilling area of sticks, large stones, wire, glass, etc. Till only in daylight.
- Always inspect the tiller for damage after striking a foreign object. Repair or replace any damaged parts before continuing use.
- Pieces thrown from worn or damaged tines can cause serious injury. Always inspect the tines before using the tiller.

Fire and Burn Hazard

Gasoline is extremely flammable, and gasoline vapor can explode.
Use extreme care when handling gasoline. Keep gasoline out of reach of children.

- Refuel in a well-ventilated area with the engine stopped.
- Allow the engine to cool before refueling. Fuel vapor or spilled fuel may ignite.
- The engine and exhaust system become very hot during operation and remain hot for a while after stopping. Contact with hot engine components can cause burn injuries and can ignite some materials.
- Avoid touching a hot engine or exhaust system.
- Allow the engine to cool before performing maintenance or storing the tiller indoors.

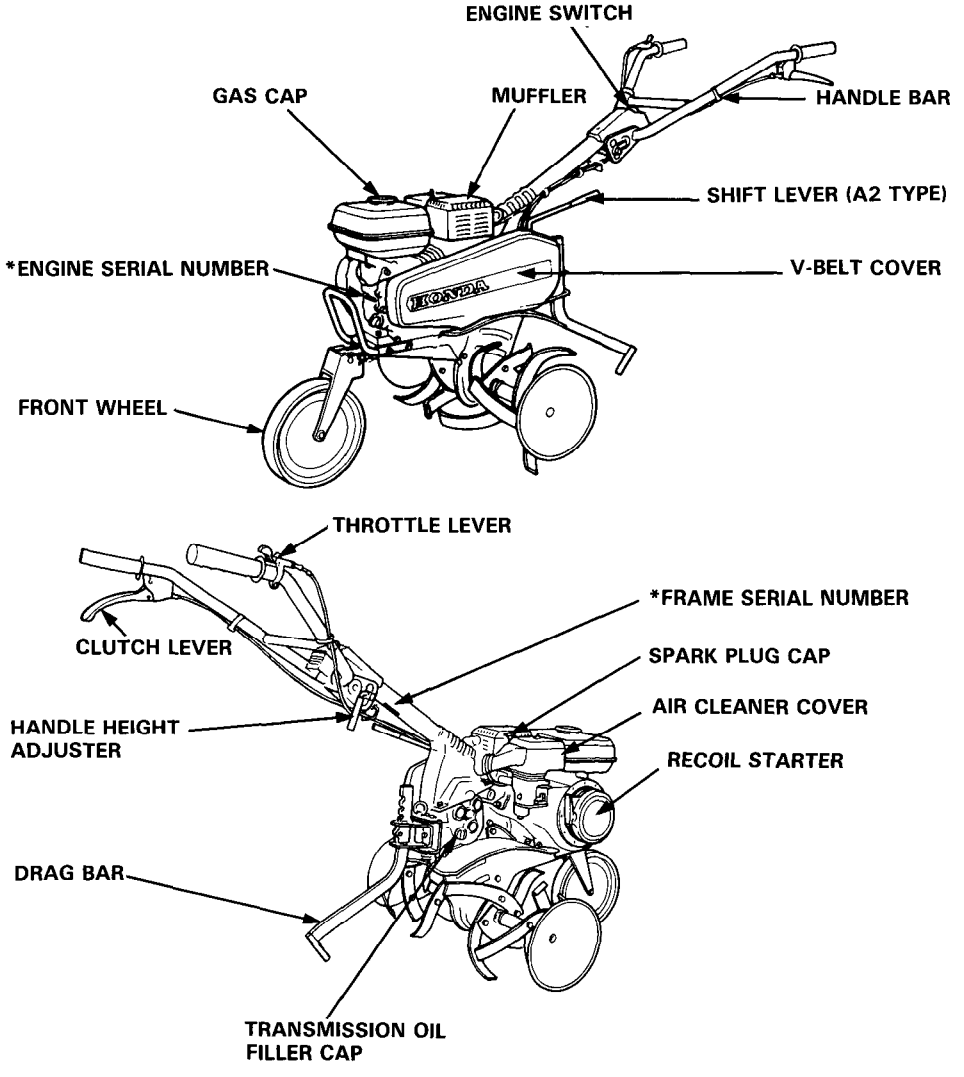
Carbon Monoxide Poisoning Hazard

Exhaust contains poisonous carbon monoxide, a colorless and odorless gas. Breathing exhaust can cause loss of consciousness and may lead to death.

- If you run the engine in an area that is confined or even partially enclosed, the air you breathe could contain a dangerous amount of exhaust gas. To keep exhaust gas from building up, provide adequate ventilation.

Operation on Slope

- When tilling on slopes, keep the fuel tank less than half full to minimize fuel spillage.
- Till across the slope (At equally spaced intervals) rather than up and down it.
- Be very careful when changing the direction of the tiller on a slope.
- Do not use the tiller on a slope of more than 20°.



* Record the frame and engine serial numbers for your reference. Refer to the serial numbers when ordering parts, and when making technical or warranty inquiries (see page 30).

Frame serial number: _____

Engine serial number: _____

3. PRE-OPERATION CHECK

ENGINE OIL

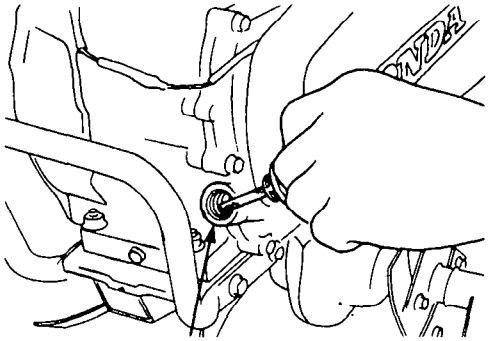
IMPORTANT NOTICE **Running the engine with low oil level will cause serious engine damage.**

1. Remove the oil filler cap and wipe the dipstick clean.
2. Insert the dipstick into the oil filler neck, but do not screw it in.
3. If the level is low, fill to the top of the oil filler neck with the recommended oil.

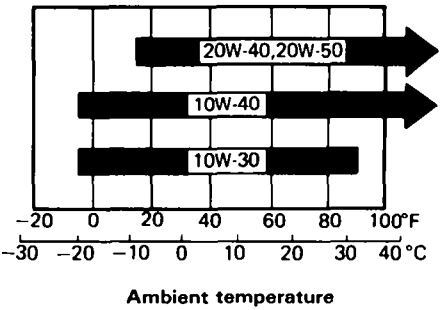
Use high-detergent, premium quality 4-stroke engine oil, certified to meet or exceed U.S. automobile manufacturer's requirements for API Service Classification SG, SF/CC, CD.

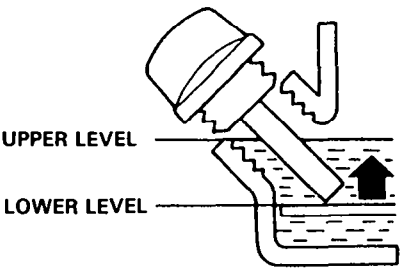
IMPORTANT NOTICE **Using nondetergent oil or 2-stroke engine oil could shorten the engine's service life.**

SAE 10W-30 is recommended for general, all-temperature use. Other viscosities shown in the following chart may be used when the average temperature in your area is within the indicated range.



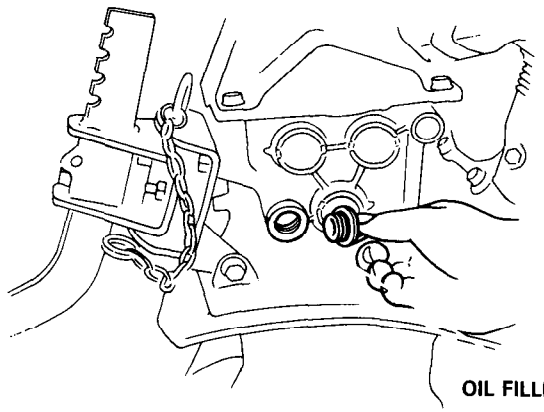
OIL FILLER NECK





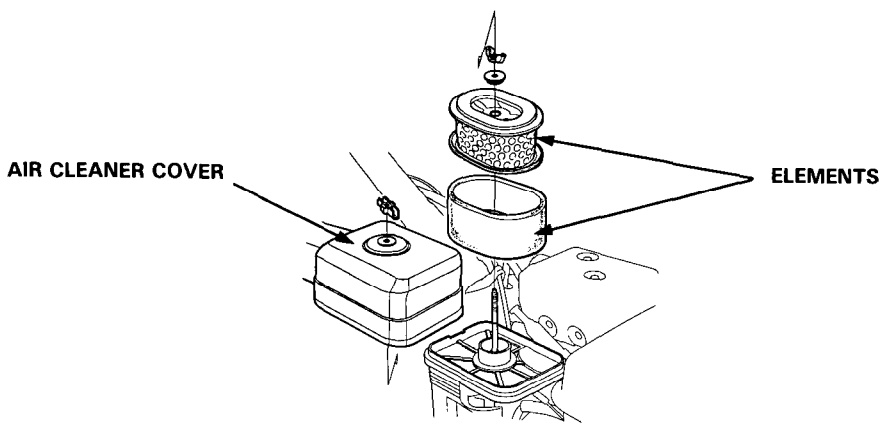
Transmission gear oil

Place the tiller on a level surface and remove the oil filler cap. The oil should be level with the lower edge of the oil filler hole. Add recommended engine oil if the level is low.



Air cleaner

Check cleaner for dirt or obstruction of elements. (See page 22 for cleaning instructions.)



GASOLINE

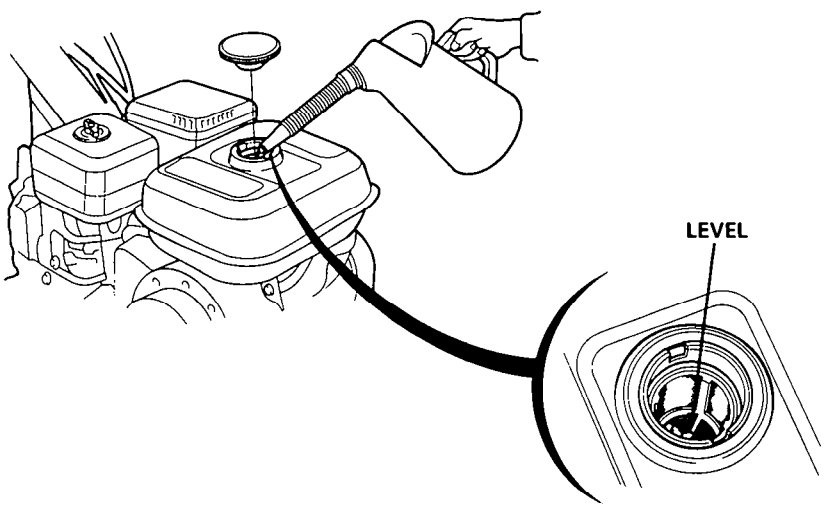
Stop the engine. Remove the gas cap and check the fuel level. Refill the tank if the level is low.
Fuel tank capacity: 0.9 ℓ (0.95 US qt)
Fuel tank capacity: F401.....1.4 ℓ (0.37 US Gal)
F501.....2.6 ℓ (0.69 US Gal)

⚠ WARNING

Gasoline is extremely flammable, and gasoline vapor can explode. Use extreme care when handling gasoline. Keep gasoline out of reach of children.

- **Refuel in a well ventilated area with the engine stopped. Keep flames and sparks away, and do not smoke in the area.**
- **Gasoline vapors or spilled gasoline may ignite.**
- **Refuel carefully to avoid spilling gasoline. Avoid overfilling the fuel tank (there should be no gas in the filler neck). After refueling, tighten the gas cap securely. If any gasoline was spilled, make sure the area is dry before starting the engine.**
- **After use, part the tiller on a level surface. Be sure the storage area is well ventilated, do not allow flames or sparks in the storage area.**

After refueling, be sure to tighten the GAS cap firmly.



Gasoline Recommendation

Pump octane rating: 86 or higher

We recommend unleaded gasoline because it produces fewer engine and spark plug deposits and extends the exhaust system life.

If "spark knock" (metallic rapping noise) or persistent "pinging" occurs at a steady engine speed under normal load, change brands of gasoline. If spark knock or pinging persists, see an authorized Honda tiller dealer.

IMPORTANT NOTICE **Running the engine with perisistent spark knock or pinging can cause engine damage.**

Running the engine with persistent spark knock or pinging is considered misuse, and the Distributor's Limited Warranty does not cover parts damaged by misuse.

Occasionally you may hear light spark knock while operating under heavy loads. This is no cause for concern. It simply means your engine is operating efficiently.

Never use stale or contaminated gasoline or an oil/gasoline mixture. Avoid getting dirt or water in the gas tank.

GASOLINES CONTAINING ALCOHOL

If you decide to use a gasoline containing alcohol (gasohol), be sure its octane rating is at least as high as that recommended by Honda (see Gasoline Recommendation on page 11). There are two types of "gasohol": one containing ethanol, and the other containing methanol.

Never use gasoline containing more than 5% methanol, even if it has cosolvents and corrosion inhibitors.

IMPORTANT NOTICE **Using gasohol that contains more than 10% ethanol, or gasoline containing methanol (methyl or wood alcohol) that does not also contain cosolvents and corrosion inhibitors for methanol, can cause serious fuel system damage and poor engine performance.**

Honda cannot endorse the use of gasoline containing methanol since evidence of its suitability is as yet incomplete.

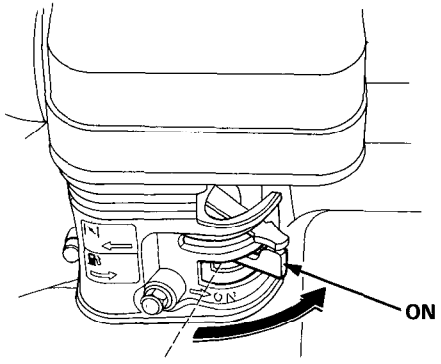
NOTE: Fuel system damage or engine performance problems resulting from the use of gasoline that contains alcohol is not covered under the warranty.

Before buying gasoline from an unfamiliar station, first determine if the gasoline contains alcohol; if it does, find out the type and percentage of alcohol used.

NOTE: If you notice any undesirable operating symptoms while using a gasoline that contains alcohol, or one that you think contains alcohol, switch to a gasoline that you know does not contain alcohol.

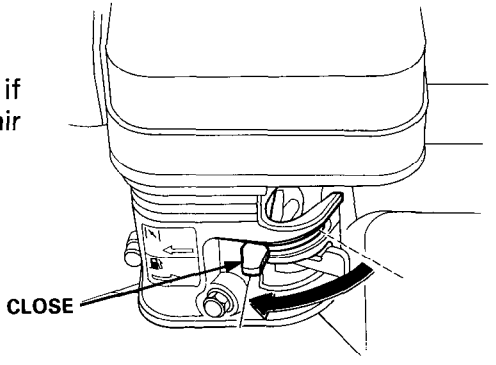
⚠CAUTION Be sure the clutch is disengaged and the shift lever is in the neutral position to prevent sudden uncontrolled movement when the engine starts. The clutch is engaged by pulling in the clutch lever and disengaged by releasing the lever.

1. Turn the fuel valve ON.

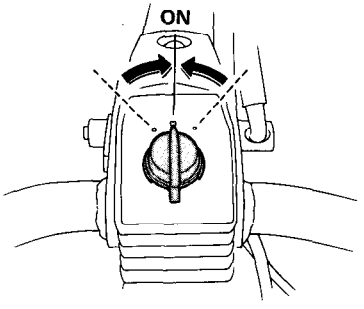


2. Close the choke lever.

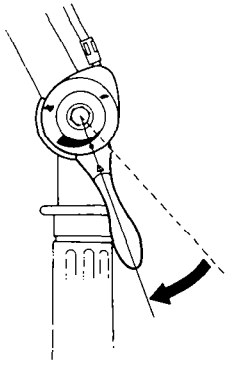
   NOTE: Do not use the choke if the engine is warm or the air temperature is high.



3. Turn the engine switch to the ON position.

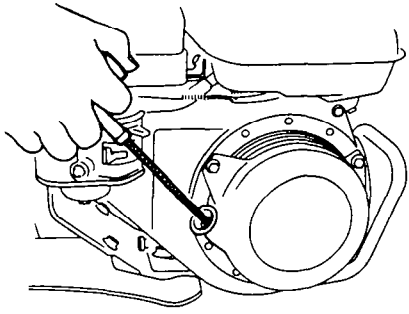


4. Move the throttle lever slightly to the left.

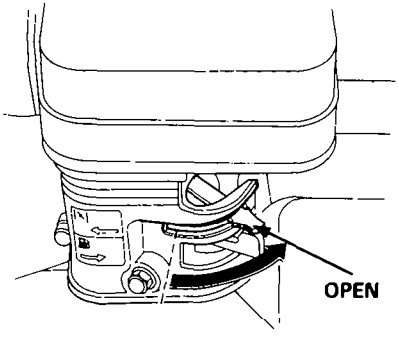


5. Pull the starter grip lightly until resistance is felt, then pull briskly.

IMPORTANT NOTICE **Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.**



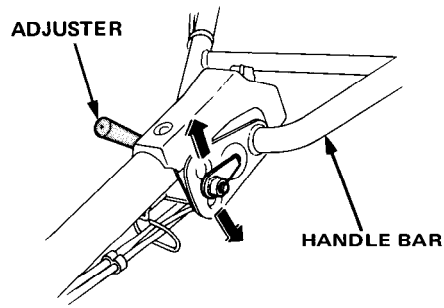
6. As the engine warms up, gradually open the choke.



1. Handlebar height adjustment

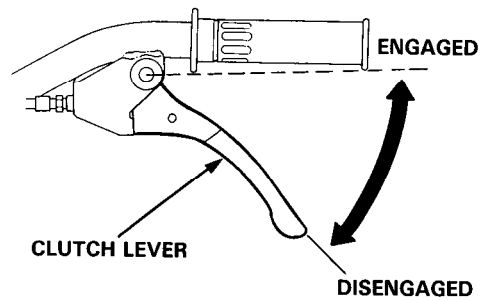
IMPORTANT NOTICE **Before adjusting the handlebar, place the tiller on firm level ground to prevent the handle from collapsing accidentally.**

To adjust the handlebar height, loosen the adjuster, select the appropriate holes and tighten the adjuster.



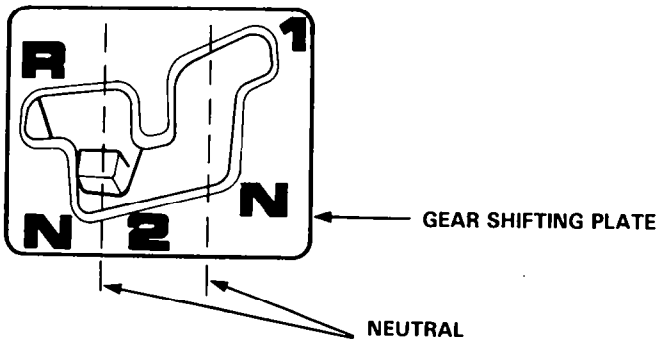
2. Clutch

The clutch engages and disengages the power from the engine to the transmission.
When the clutch lever is squeezed, the clutch is engaged and power is transmitted, to the transmission.
When the lever is released, the clutch is disengaged and power is not transmitted.



3. Gear selection (A2 type only)

The transmission on the A2 type tiller offers a choice of two forward speeds and one reverse. Shift lever positions are indicated on the Gear Shifting Plate.

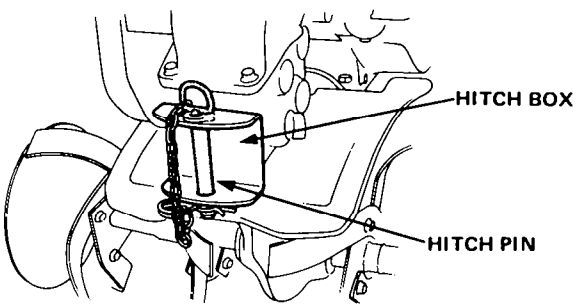


Shift Lever Operation:
1. Return the throttle lever to the extreme right.
2. Release the clutch lever to disengage the clutch.
3. Move the shift lever to the desired gear position.

NOTE: If the shift lever will not engage the desired gear, squeeze the clutch lever and move the tiller slightly to reposition the gears.

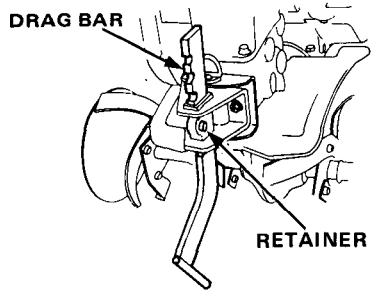
4. Hitch box

Use a hitch pin as shown below to attach the drag bar or any other attachments to the hitch box.



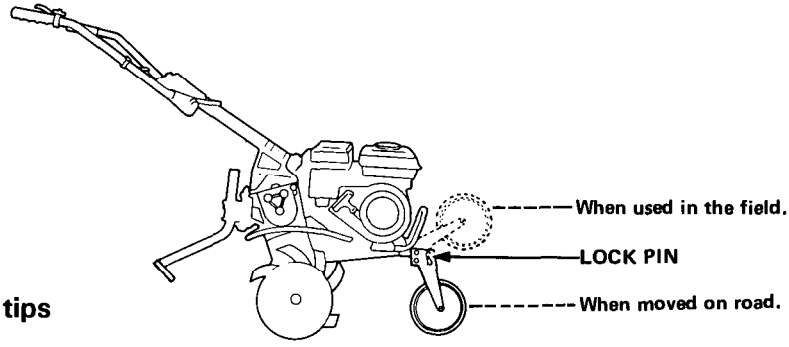
5. Tilling depth adjustment

The drag bar is used to control the tilling depth, which can be adjusted by removing the retainer and sliding the drag bar up and down as necessary (see **Handling tips**, below).



6. Front wheel

The front wheel is used to help move the tiller from one place to another. To move the tiller in this manner, place the front wheel in the "down" position and insert the lockpin. Then lift the handlebars so that the tiller can be easily rolled on the front wheel.
Before tilling, return the wheel to the "up" position and secure in place with the lockpin.

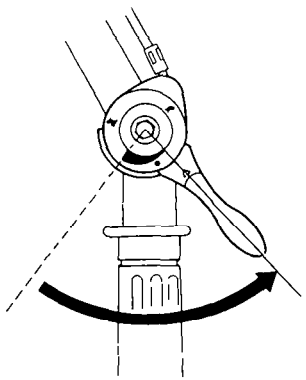


7. Handling tips

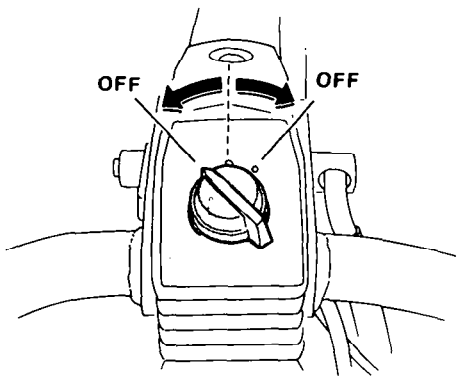
- Adjust the handlebar height to a comfortable position (waist height for normal tilling).
- The drag bar should always be used when tilling. It enables you to compensate for the hardness of the soil. The ideal height of the drag bar will depend on the type of soil being tilled and soil conditions at the time of tilling. In general, however, the drag bar should be adjusted so that the tiller is tilted slightly backward.
- If the machine jerks forward while tilling, press down on the handlebars. This will cause the tines to dig more deeply into the soil.
- If tines dig in but the machine will not move forward, move the handlebars from side to side.
- When turning, push down on the handlebars to bring the tiller's weight to the rear; this will make turning easier.

6. STOPPING THE ENGINE

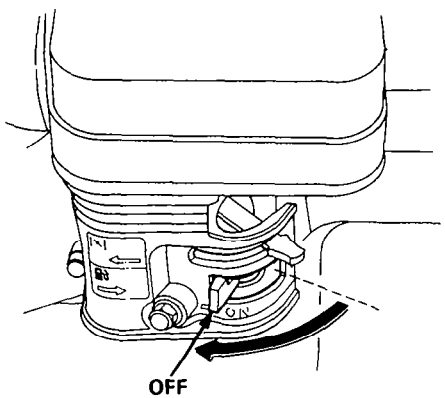
1. Move the throttle lever fully to the right.



2. Turn the engine switch to the OFF position.



3. Turn the fuel valve OFF.



High Altitude Operation

At high altitude, the standard carburetor air-fuel mixture will be too rich. Performance will decrease, and fuel consumption will increase. A very rich fuel mixture may also foul the spark plugs and cause hard starting.

High altitude performance can be improved by installing a smaller diameter main fuel jet in the carburetor and readjusting the pilot screw. If you always operate the engine at altitudes higher than 6,000 feet above sea level, have an authorized Honda tiller dealer perform this carburetor modification.

Even with carburetor modification, engine horsepower will decrease about 3.5% for each 1,000 feet increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.

IMPORTANT NOTICE **Once a carburetor is jetted for high altitude use, operation at lower altitudes without rejetting may result in reduced performance, overheating, and serious engine damage.**

It is especially important to rejet a carburetor when going from a higher altitude to a lower one. At lower altitudes, the air/fuel mixture may become excessively lean.

7. MAINTENANCE

The purpose of the maintenance schedule is to keep the tiller in the best operating condition. Inspect or service as scheduled in the table below.

⚠WARNING Shut off the engine before performing any maintenance. If the engine must be run, make sure the area is well ventilated. The exhaust contains poisonous carbon monoxide gas.

IMPORTANT NOTICE Use only genuine HONDA parts or their equivalent for maintenance or repair. Replacement parts which are not of equivalent quality may damage the tiller.

Maintenance Schedule

ITEM / REGULAR SERVICE PERIOD (Perform at every indicated month or operating hour interval, whichever comes first.)		EACH USE	FIRST MONTH OR 20 HRS	EVERY 3 MONTHS OR 50 HRS	EVERY 6 MONTHS OR 100 HRS	EVERY YEAR OR 300 HRS
Engine oil	Check level	O				
	Change		O		O	
Transmission oil	Check level	O				
Air cleaner	Check	O				
	Clean			O(1)		
Belt tension	Adjust		O		O	
Spark plug	Clean-Readjust				O	
Fuel filter	Clean				O	
Throttle cable	Adjust					O
Clutch cable	Adjust		O		O	
Valve clearance	Check-Readjust					O(2)
Fuel tank	Clean					O(2)
Fuel line	Check (Replace if necessary)	Every 2 years (2)				

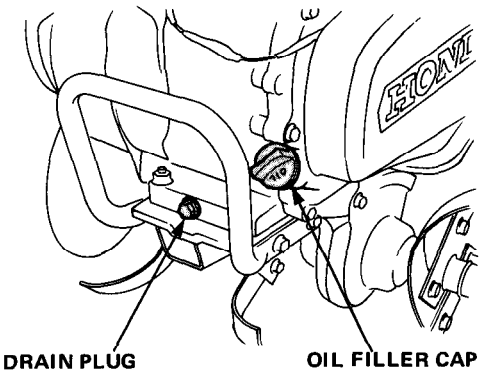
NOTE (1): Service more frequently when used in dusty areas.
(2): These items should be serviced by an authorized Honda dealer, unless the owner has the proper tools and is mechanically proficient. See the Honda Shop Manual.

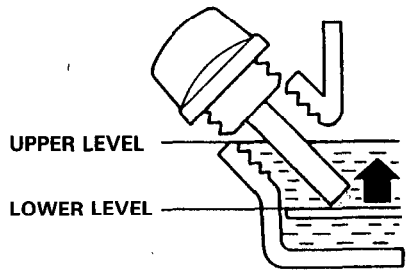
1. Changing oil

Drain the oil while the engine is still warm to assure rapid and complete draining.

1. Turn off fuel valve.
2. Remove the oil filler cap.
3. Tilt the tiller forward to drain the crankcase completely.
4. Replace the drain plug, refill with the recommended oil (p. 8), and replace the oil filler cap.

OIL CAPACITY: 0.6 ℓ (0.63 US qt)





⚠CAUTION Used motor oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughtly wash your hands with soap and water as soon as possible after handling used oil.

NOTE: Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take it in a sealed container to your local service station for reclamation. Do not throw it in the trash or pour it on the ground.

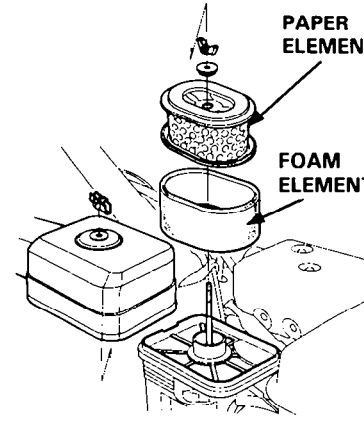
2. Air cleaner service

A dirty air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly. Service more frequently when operating the engine in extremely dusty areas.

⚠WARNING Never use gasoline or low flash point solvents for cleaning the air cleaner element. A fire or explosion could result.

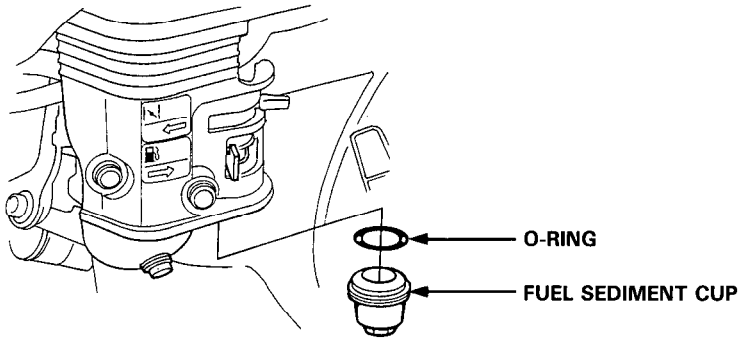
IMPORTANT NOTICE Never run the engine without the air cleaner. Rapid engine wear will result.

1. Remove the wing nut and the air cleaner cover. Remove the elements and separate them. Carefully check both elements for holes or tears and replace if damaged.
2. Foam element: Clean in warm soapy water, rinse and allow to dry thoroughly. Or clean in high flash-point solvent and allow to dry. Dip the element in clean engine oil and squeeze out all the excess. The engine will smoke during initial start-up if too much oil is left in the foam.
3. Paper element: Tap the element lightly several times on a hard surface to remove excess dirt, or blow compressed air through the filter form the inside out. Never try to brush the dirt off; brushing wil force dirt into the fibers.



3. Clean fuel sediment cup

Turn the fuel valve to the off position and remove the fuel sediment cup and O-ring.
Wash the fuel sediment cup in solvent and dry it thoroughly. To reinstall, first place the O-ring in the fuel valve. Then screw the fuel sediment cup onto the fuel valve by hand and secure it with a wrench.



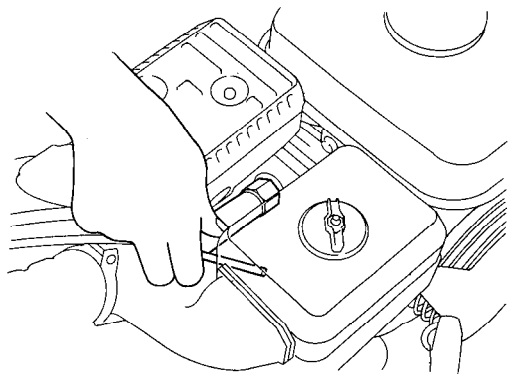
4. Spark plug service

Recommended spark plug: BPR5ES (NGK)
W16EPR-U (ND)

To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

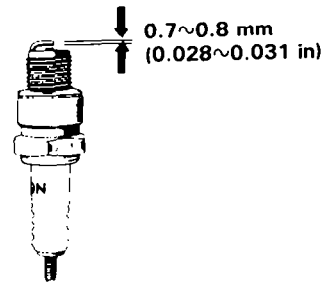
1. Remove the spark plug cap.

⚠CAUTION If the engine has been running, the muffler will be very hot. Be careful not to touch the muffler.

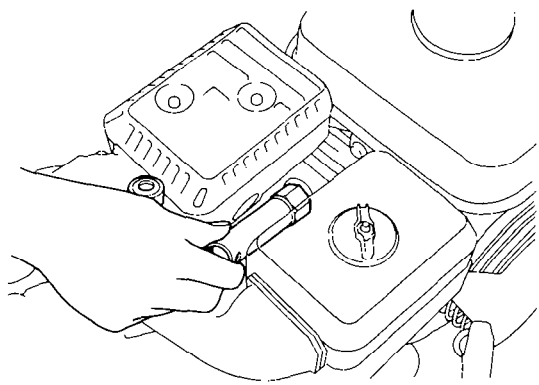


2. Visually inspect the spark plug. Discard it if the insulator is cracked or chipped. Clean the spark plug with a wire brush if it is to be reused.

3. Measure the plug gap with a feeler gauge. The gap should be 0.7—0.8 mm (0.028—0.031 in). Correct as necessary by bending the side electrode.



4. Attach the plug washer. Thread the plug in by hand to prevent cross-threading.

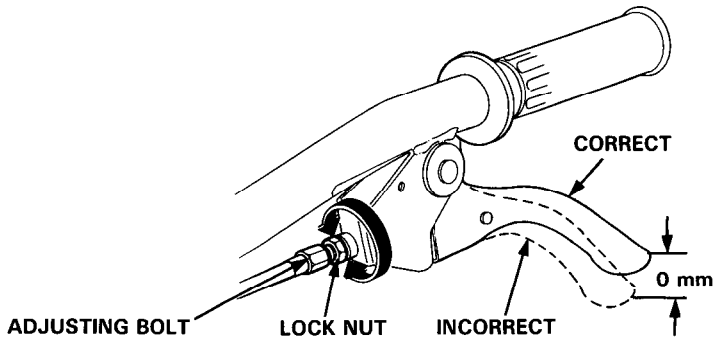


5. Tighten a new spark plug 1/2 turn with the wrench to compress the washer. If you are reusing a plug, it should only take 1/8—1/4 turn after the plug seats.

IMPORTANT NOTICE **The spark plug must be securely tightened. An improperly tightened plug can become very hot and possibly damage the engine. Never use a spark plug with an improper heat range.**

5. Clutch cable adjustment

There should be no free play at the lever end.
If lever adjustment is incorrect, loosen the lock nut and turn the adjusting bolt in or out just enough to eliminate free play. Do not overtighten.



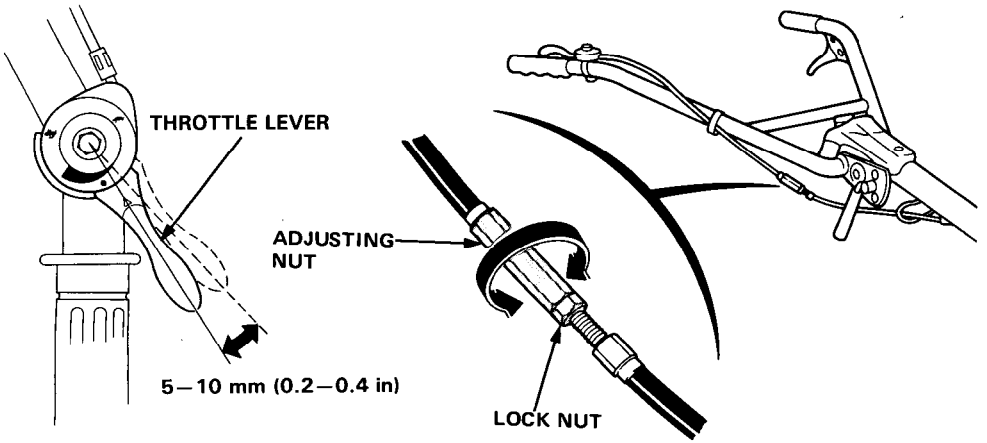
After adjustment, tighten the lock nut securely. Then start the engine and check for proper clutch operation.

6. Throttle cable adjustment

Measure the free play at the lever tip.

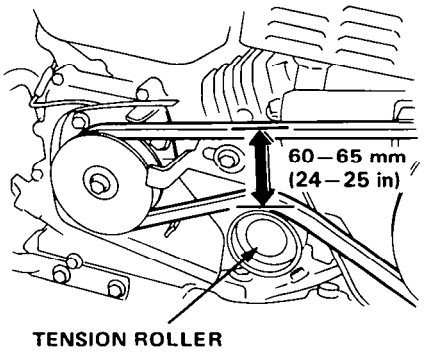
Free play: 5—10 mm (0.2—0.4 in)

If the free play is incorrect, loosen the lock nut and turn the adjusting nut in or out as required.



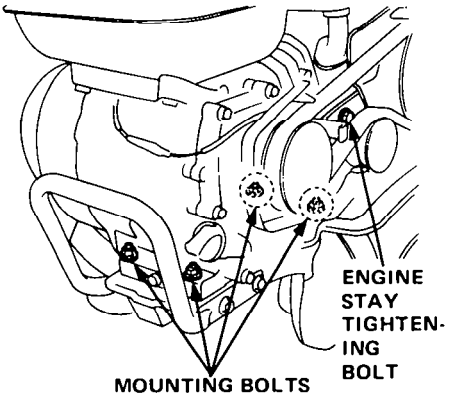
7. Belt tension adjustment

1. Adjust the clutch cable (page 25). Belt tension is correct when the distance from the top of the belt to the top of the tension roller is 60—65 mm (2.4—2.5 in) when the clutch is engaged.



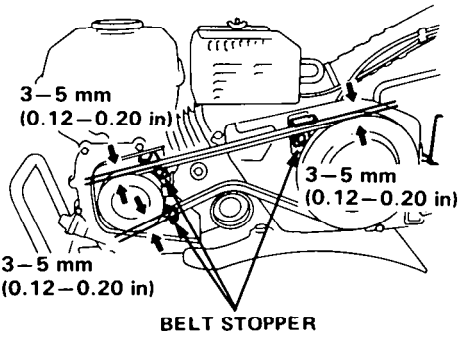
2. To adjust, loosen the four engine mounting bolts and the engine stay tightening bolt and move the engine forward or backward to get proper tension on the belt.

   NOTE: After adjusting the tension, use a straight edge to make sure that the outside face of the drive pulley is flush with the outside face of the driven pulley.



3. Loosen the belt stopper attaching bolts. Adjust the clearance between the belt stopper and the belt as illustrated with the clutch lever squeezed.

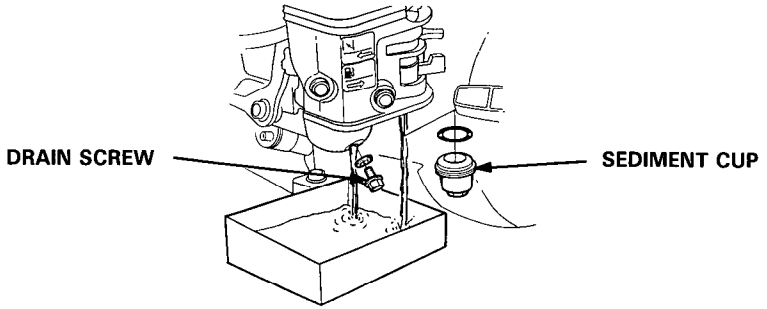
   STANDARD CLEARANCE:
   3—5 mm (0.12—0.20 in)



⚠WARNING When transporting the tiller, turn the fuel valve OFF and keep the tiller level to prevent fuel spillage. Fuel vapor or spilled fuel may ignite.

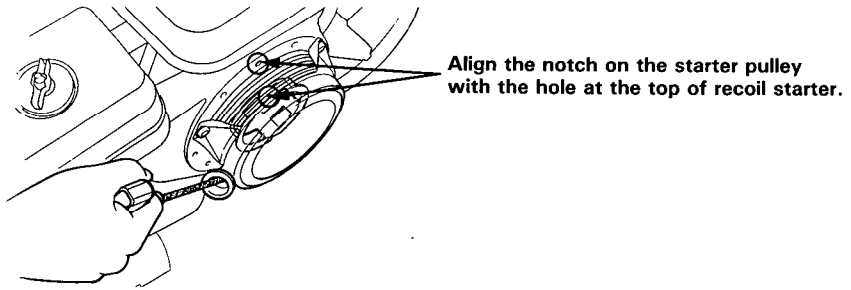
Before storing the unit for an extended period;

1. Be sure the storage area is free of excessive humidity and dust.
2. Drain the fuel ...
   a. With the fuel valve turned OFF, remove and empty the sediment cup.
   b. Turn the fuel valve ON and drain the gasoline in the fuel tank into a suitable container.
   c. Replace the sediment cup and tighten securely.
   d. Drain the carburetor by removing the drain screw. Drain the gasoline into a suitable container. Replace the drain screw.



⚠WARNING Gasoline is flammable and explosive under certain conditions. Do not smoke or allow flames sparks near the equipment while draining fuel.

3. Pull the starter cord until resistance is felt. Continue pulling until the notch on the starter pulley aligns with the hole on the recoil starter (see illustration below). At this point, the intake and exhaust valves are closed, and this will help to protect the engine from internal corrosion.



4. Change engine oil. (If anticipated storage will exceed 1 year.)
5. Cover tiller and place it in a dry, dust-free, secure area, out of the reach of children.

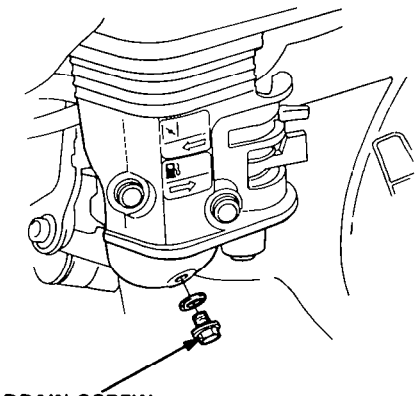
NOTE: Solid plastic covers are not recommended, because they will trap moisture around the tiller, promoting rust and corrosion.

9. TROUBLESHOOTING

When the engine will not start;
1. Is there enough fuel?
2. Is the fuel valve on?
3. Is the engine switch ON?
4. Is gasoline reaching the carburetor?

   To check, loosen the drain screw with the fuel valve on. Fuel should flow out freely. Retighten drain screw.

⚠WARNING If any fuel is spilled, make sure the area is dry before testing the spark plug or starting the engine. Fuel vapor or spilled fuel may ignite.



5. Is there a spark at the spark plug?

   a. Remove the spark plug cap. Clean any dirt from around the spark plug base, then remove the spark plug.
   b. Install the spark plug in the plug cap.
   c. Turn the engine switch on.
   d. Grounding the side electrode to any engine ground, pull the recoil starter to see if sparks jump across the gap.
   e. If there is no spark, replace the plug.
      If OK, try to start the engine according to the instructions.

6. If the engine still does not start, take the tiller to an authorized Honda dealer.

Model	F401-A	F401-A2	F501-A1	F501-A2
Power products description code	F401		F501	
Dimensions and weight Dry Weight	34 kg (75.0 lb)		36 kg (79.4 lb)	
Length	1,320 mm (52.0 in)			
Width	655 mm (25.8 in)	670 mm (26.3 in)		955 mm (37.6 in)
Height	970 mm (38.2 in)	995 mm (39.2 in)		
Engine Model	GX 110		GX 140	
Type	4-Stroke, 1-Cylinder, OHV, Forced Air Cooled			
Displacement	107 cm^3 (6.5 cu in)		144 cm^3 (8.8 cu in)	
Bore x Stroke	57 x 42 mm (2.2 x 1.7 in)		64 x 45 mm (2.5 x 1.8 in)	
Ignition System Spark Plug Oil Capacity	Transistor Magneto BPR5ES (NGK), W16EPR-U (ND) 0.6 ℓ (0.63 US qt)			
Fuel Tank Capacity	1.4 ℓ (0.37 US gal)		2.6 ℓ (0.69 US gal)	
Clutch	Belt Tension			
Transmission oil capacity	0.95 ℓ (1.0 US qt)			

11. WARRANTY SERVICE

Owner Satisfaction

Your satisfaction and goodwill are important to your dealer and to us. All Honda warranty details are explained in the Distributor's Limited Warranty. Normally, any problems concerning the product will be handled by your dealer's service department. If you have a warranty problem that has not been handled to your satisfaction, we suggest you take the following action:

- Discuss your problem with a member of dealership management. Often complaints can be quickly resolved at that level. If the problem has already been reviewed with the Service Manager, contact the owner of the dealership or the General Manager.

- If your problem still has not been resolved to your satisfaction, contact:

  American Honda Motor Co., Inc.
  P.O. Box 50
  Gardena, California 90247-0805
  Telephone: (213) 604-2400

We will need the following information in order to assist you:

- Your name, address, and telephone number
- Product model and serial number
- Date of Purchase
- Dealer name and address
- Nature of problem

After reviewing all the facts involved, you will be advised of what action can be taken. Please bear in mind that your problem will likely be resolved at the dealership, using the dealer's facilities, equipment, and personnel, so it is very important that your initial contact be with the dealer.

Your purchase of a Honda product is greatly appreciated by both your dealer and American Honda Motor Co., Inc. We want to assist you in every way possible to assure your complete satisfaction with your purchase.

HONDA

HONDA MOTOR CO., LTD. TOKYO, JAPAN

31733601
00X31-733-6010

(AH) (英) (Y) 5009009
PRINTED IN JAPAN K1